**OPTICS COMMUNICATIONS**

Volume 134, numbers 1–6, 15 January 1997

(Continued from following page)

R. Böhm, V.M. Baev and P.E. Toschek, Measurements of operation parameters and nonlinearity of a $Nd^{3+}$-doped fibre laser by relaxation oscillations 537

V. Lecoeuche, B. Ségard and J. Zemmouri, Modes of destabilization of Brillouin fiber ring lasers 547

F. Vaudelle, J. Gazengel and G. Rivoire, Experimental studies of the spatial coherence of forward stimulated Raman scattering in dense materials 559

M.P. Petrov, V.M. Petrov, I.S. Zouboulis and L.P. Xu, Two-wave and induced three-wave mixing on a thin $Bi_{12}TiO_{20}$ hologram 569

Ph. Delaye, L.A. de Montmorillon, I. Biaggio, J.C. Launay and G. Roosen, Wavelength dependent effective trap density in CdTe: evidence for the presence of two photorefractive species 580

Y. Li, F. Hou, S. Liu, W. Sun and K. Xu, Photorefractive properties with multiple traps and two types of charge carriers in doped KNSBN crystals 591

S. Breugnot, M. Defour and J.P. Huignard, Photorefractive two-wave mixing: complex amplitudes solutions in the case of a weak signal beam 599

F. Jeannès, E. Lugagne-Delpon, C. Tanguy and J.L. Oudar, Nonlinear optical and bistable properties of a wafer-fused vertical-cavity device based on InGaAsP 607

*Author index* 615

*Subject index* 624

# OPTICS COMMUNICATIONS

Volume 134, numbers 1–6, 15 January 1997


(Continued from following page)

*Atomic, molecular and plasma physics*


J. Enderlein and R. Erdmann, Fast fitting of multi-exponential decay curves 371

I. Rückmann, M. Petrauskas, O. Korth, Th. Hanke and B. Röder, Picosecond transient absorption spectroscopy on $13^2$-hydroxy-bacteriopheophorbide-methylester (OH–BPME) molecules in solution and embedded in mixed Langmuir–Blodgett films 379

Z. Ficek and M.R.B. Wahiddin, Pure two-atom squeezed state in spontaneous emission from two non-identical atoms 387


*Condensed matter*


D.L. Russell, B. Henderson, B.H. Chai, J.F.H. Nicholls and K. Holliday, Site selective upconversion in $Nd^{3+}$:$KLiYF_5$ 398

A.B. Djurišić, J.M. Elazar and A.D. Rakić, Modeling the optical constants of solids using genetic algorithms with parameter space size adjustment 407

L. Zundu, C. Xueyuan and Z. Tingjie, Judd–Ofelt parameter analysis of rare earth anisotropic crystals by three perpendicular unpolarized absorption measurements 415


*Quantum optics*


M. Schiffer, M. Christ, G. Wokurka and W. Ertmer, Temperatures near the recoil limit in an atomic funnel 423

A. Wicht, K. Danzmann, M. Fleischhauer, M. Scully, G. Müller and R.-H. Rinkleff, White-light cavities, atomic phase coherence, and gravitational wave detectors 431

S.T. Gevorkyan, G.Yu. Kryuchkyan and K.V. Kheruntsyan, Noise, instability and squeezing in third harmonic generation 440

T. Gruner and D.-G. Welsch, Photon tunneling through absorbing dielectric barriers 447

P. Zhou, S. Swain, G.-X. Li and J.-S. Peng, Atomic emission spectrum including virtual photon transitions in a cavity 455

M. Fiorentino, P. Maddalena, A. Porzio, R. Romano and S. Solimeno, Low frequency spectrum of vacuum squeezed radiation to be used in GW antennas 463


*Lasers*


Y. Zhao, An analytical model for $Pr^{3+}$-doped fluoride fibre upconversion lasers 470

O. Acef, Metrological properties of $CO_2/OsO_4$ optical frequency standard 479

M.G. Kong, Enhanced amplification of a waveguide free electron laser prebunched at multiharmonic frequencies 487

J. Badziak, S.A. Chizhov, A.A. Kozlov, J. Makowski, M. Paduch, K. Tomaszewski, A.B. Vankov and V.E. Yashin, Picosecond, terawatt, all-Nd:glass CPA laser system 495

S. Bollanti, P. Di Lazzaro and D. Murra, How many times is a laser beam diffraction-limited? 503

N. Korneev, P. Rodríguez and S. Stepanov, 2D pattern matching with adaptive photodetectors 514

H. Ninomiya and K. Nakamura, $Ar_2^*$ excimer emission from a pulsed electric discharge in pure Ar gas 521


*Nonlinear optics*


F.E. Hernández, A. Marcano O and H. Maillotte, Sensitivity of the total beam profile distortion Z-scan for the measurement of nonlinear refraction 529


(Continued on preceding page)

# OPTICS COMMUNICATIONS

Volume 134, numbers 1–6, 15 January 1997


(Continued from following page)


S. Szatmári, Z. Bakonyi and P. Simon, Active spatial filtering of laser beams 199

Y. Zhu, D. Zhang, X. Niu and X. Wu, High efficiency self-pumped phase conjugation from 45°-cut Ce:$BaTiO_3$ 205

M. Chauvet, T. Towe, G.J. Salamo, D.F. Bliss, G. Bryant and G. Iseler, Phase shift between index and intensity patterns in photorefractive two-wave mixing experiments in InP:Fe 211

C.-W. Chang and S. Chi, Passive mode-locking through nonlinear polarization rotation in low-birefringence fibers 218

G. Leo, G. Assanto and W.E. Torruellas, Beam pointing control with spatial solitary waves in quadratic nonlinear media 223

S. Juodkazis, V. Netiksis, M. Petrauskas, H.J. Eichler, B. Smandek and Y. Ding, Contactless determination of the dominant photorefractive mobile charge by comparing cw and ps two-wave mixing 227

*FULL LENGTH ARTICLES*

*Propagation, diffraction and scattering*

G.H. Meeten, Refraction by spherical particles in the intermediate scattering region 233

A. Mendoza-Suárez and E.R. Méndez, Derivation of an impedance boundary condition for one-dimensional, curved, reentrant surfaces 241

A. Madrazo and A.A. Maradudin, Numerical solutions of the reduced Rayleigh equation for the scattering of electromagnetic waves from rough dielectric films on perfectly conducting substrates 251

*Optical information, image formation and analysis, optical computing*

N. Wada, J. Uozumi and T. Asakura, Optical evaluation of fractal surfaces using array illumination 264

E. Pérez and M.S. Millán, Adaptive channel selection for improving chromatic discrimination in colour pattern recognition 273

B. Lunitz and J. Jahns, Tolerant design of a planar-optical clock distribution system 281

I.A. Popov, N.V. Sidorovsky and L.M. Veselov, Statistical properties of non-Gaussian intensity fluctuations in the image plane of an optical system 289

U. Schwarz, M.L. Berthié, D. Courjon and H. Bielefeldt, Simple reflection Scanning Near-field Optical Microscope using the back reflected light inside the laser cavity as detection mode 301

D. Dirksen, F. Matthes, S. Riehemann and G. von Bally, Phase shifting holographic double exposure interferometry with fast photorefractive crystals 310

*Optical communications*

I. Gabitov, E.G. Shapiro and S.K. Turitsyn, Optical pulse dynamics in fiber links with dispersion compensation 317

E. Simova, M. Kavehrad and K. Stoev, Wavelength demultiplexing by chirped waveguide gratings 330

G.P. Brady, K. Kalli, D.J. Webb, D.A. Jackson, L. Zhang and I. Bennion, Extended-range, low coherence dual wavelength interferometry using a superfluorescent fibre source and chirped fibre Bragg gratings 341

J.A. Reyes and R.F. Rodríguez, Guiding of optical fields in a liquid crystal cylindrical fiber 349

H. Saarikoski, R.-P. Salmio, J. Saarinen, T. Eirola and A. Tervonen, Fast numerical solution of nonlinear diffusion equation for the simulation of ion-exchanged micro-optics components in glass 362


(Continued on preceding page)

# OPTICS COMMUNICATIONS

Volume 134, numbers 1–6, 15 January 1997


(Continued from page 4 of cover)

*Condensed matter*


C. Ludwig, J. Kuhl and J.O. White, Complex dielectric function of $NdGaO_3$ in the THz frequency regime 95


*Quantum optics*


K.G. Petrossian, Quantum theory of the nondegenerate parametric $\chi^{(3)}$-interaction 99

A.P. Chu, K.S. Johnson and M.G. Prentiss, A virtual amplitude grating for atomic optics 105

T. Opatrný, D.-G. Welsch and W. Vogel, Multi-mode density matrices of light via amplitude and phase control 112

M.G.A. Paris, A.V. Chizhov and O. Steuernagel, Phase space distributions from three-port couplers 117

E. Mariotti, M. Meucci, P. Bicchi, C. Marinelli and L. Moi, An efficient photo-atom source 121

P. Zhou and S. Swain, Two-photon excitation and quantum interference for a ladder atom in a cavity with injected squeezed light 127


*Lasers*


J. Itatani, Y. Nabekawa, K. Kondo and S. Watanabe, Generation of 13-TW, 26-fs pulses in a Ti:sapphire laser 134

H.M. Pask, A.C. Tropper and D.C. Hanna, A $Pr^{3+}$-doped ZBLAN fibre upconversion laser pumped by an $Yb^{3+}$-doped silica fibre laser 139

G.N. Tsikrikas and A.A. Serafetinides, Discharge and circuit simulation of a plasma cathode TEA HF laser operating with a $He/SF_6/C_3H_8$ gas mixture 145

S.K. Dixit, S.R. Daulatabad, P.K. Shukla and R. Bhatnagar, Diffraction filtered resonator for Rh6G dye laser transversely pumped by a copper vapor laser 149

P. Peterson, M.P. Sharma and A. Gavrielides, Modeling of Yb:YAG tuning curves 155

J. Theimer and J.W. Haus, Dispersion balanced figure-eight laser 161

J.-F. Ripoche, B. Prade, M. Franco, G. Grillon, R. Lange and A. Mysyrowicz, Determination of the duration of UV femtosecond pulses 165

S.L. Huang, F.J. Kao, L.R. Liu and C.S. Hsu, Frequency-offsetted cavity-length control loop in a diode-laser-pumped and actively mode-locked Nd:YLF laser 171

R. Koch, W.A. Clarkson, D.C. Hanna, S. Jiang, M.J. Myers, D. Rhonehouse, S.J. Hamlin, U. Griebner and H. Schönnagel, Efficient room temperature cw Yb:glass laser pumped by a 946 nm Nd:YAG laser 175

A. Klehr, U. Mertingk, R. Müller and R. Oberschmid, Influence of external optical feedback on polarization switching in InGaAsP/InP lasers 179


*Nonlinear optics*


C. McGowan, D.T. Reid, M. Ebrahimzadeh and W. Sibbett, Femtosecond pulses tunable beyond 4 μm from a KTA-based optical parametric oscillator 186

M.A. Vorontsov, M. Zhao and D.Z. Anderson, Nonlinear dynamics of a 2D feedback system with photorefractive gain 191

F. Wang, L. Liu and G. Li, Self-pumped forward and backward phase conjugator with Cu-doped KNSBN crystal: caused by scattering-oscillation-amplification 195


(Continued on preceding page)